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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,464

12/12/2003

Akira Hattori

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7590

09/22/2006

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EXAMINER

PIPALA, EDWARD J

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/733,464	HATTORI ET AL.	
	Examiner	Art Unit	
	Edward Pipala	3663	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 14-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office action is in response to Applicant's amendments and remarks filed 7/5/06.

Claims 1-18 are presently pending, claims 14-17 have been withdrawn from consideration with traverse in the election dated 12/30/05.

This application contains claims 14-17 drawn to an invention nonelected with traverse in the election dated 12/30/05. A complete reply to this final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The rejection of claims 7-13 and 18 under 35 U.S.C. 112 2<sup>nd</sup> is withdrawn in view of Applicant's amendment to the claims.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-13 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese patent application publication 2001-328451 (and translation) of Takamasa et al., supplied by Applicant.

Applicant's independent claim 1 essentially recites a device for estimating the radius of a curve of a road on which a vehicle is or will be running by taking into account vehicle speed, vehicle yaw rate and steering angle.

The abstract of Japanese published application 2001-328451 to Takamasa et al. (Denso corp.) clearly discloses a curve radius computing section which does so based on vehicle speed, steering angle or a yaw rate. The claimed invention of Takamasa et al. (lines 7-10 of claim 1 in the translation), further indicates that the curve data is based on steering angle or yaw rate "detected by yaw rate detection means to detect the yaw rate of a steering angle detection means", and therefore it is considered to be the case that both steering angle *and* yaw rate are being used to determine the radius of the curve of the road upon which the vehicle is or will be traveling.

Applicant's dependent claims 2-6 and 18 further recite determining a "base" value estimation for curve radius on the basis of vehicle speed and yaw rate, and subsequently correcting the base value using steering angle (claim 2), further estimating the curve's radius depending on the magnitude of the estimate and a temporal variation or time period (claim 3), that this time period varies inversely with vehicle speed (the predetermined time period is shortened as vehicle speed increases, claim 4), that steering angle sensitivity is more (increased) when the expected radius of the curve is relatively small than when the expected value is relatively large (claim 5), and that the amount of correction of the base value is a product of an amount of variation of the steering angle and time.

These aspects of determining a base radius value and subsequently determining correction factors based on the magnitude and time duration of steering and yaw are disclosed in sections [0004], [0009], [0023-0029], and in particular sections [0051 and 0062].

Independent claim 7 also recites a curve radius estimation device in which vehicle speed, yaw rate are made use of to first estimate the curve radius based on vehicle speed

Art Unit: 3663

and yaw rate (but not steering angle), and a second estimate in which curve radius is based upon all three of vehicle speed, yaw rate and steering angle, which are then combined to form a final value.

As noted in the rejections above, Takamasa et al. clearly teaches the use of vehicle speed, steering angle and yaw rate in determining the radius of a curve, where sections [0051-0062] disclose computing a first and second curve radius, where sections [0008-0009] disclose the use of these first and second data as part of a curve equalization process.

Dependent claims 8-13 further recite selection the larger of the first and second estimates as the final curve radius value (claim 8), enabling acquisition of the second estimate when an expected curve value is less than a predetermined value and the state of temporal variation for the first estimate does not exceed a predetermined state for a given time period (claim 9), that the time period is shortened as vehicle speed increases (claim 10), that the second estimate is acquired based on the amount of steering angle variation in a time period (claims 11, 12), and that the second estimation part determines an amount of correction for the first and second estimates based on steering angle variation per time and a correction coefficient that increases with a decrease in curve radius, respectively.

These claimed aspects are disclosed by the Japanese published application to Takamasa et al. the latter portion of the abstract which teaches combining first and second curve estimates to form a third by averaging, as well as in the above previously noted sections.

***Response to Arguments***

3. Applicant's arguments filed 7/5/06 have been fully considered but they are not persuasive with respect to the rejection of claims 1-13 and 18 under 35 U.S.C. 102 as being anticipated by Japanese published application 2001-328451 to Takamasa et al.

Applicant's arguments for the most part seem to be centered around the position that the curve radius estimation device of Takamasa et al. does not teach or disclose computing the radius of a curve based on vehicle speed, yaw rate and steering angle, but that instead Takamasa et al. teaches or discloses in the abstract that the radius of a curve is determined by vehicle speed, steering angle or yaw rate. While it is true that the abstract does read this way, lines 7-9 of translated claim 1 of Takamasa et al. further reads "[t]he first advance way presumption means which computes the first curve data in which advance way of the aforementioned self-vehicles is shown based on the steering angle or yaw rate detected by yaw detection means to detect yaw rate of a steering angle detection means to detect the steering steering angle of self-vehicles". From this it is suggested that both "steering angle" and "yaw" may be used together.

On the other hand, independent claim 7 calls for "selectively or collectively" using the first and second estimates of curve radius, where the first estimate uses vehicle speed and yaw rate but not steering angle, and the second estimate makes use of all three of vehicle speed, yaw rate and steering angle. Takamasa et al. would certainly anticipate this claim either way the reference could be interpreted.

With respect to the dependent claims which perform corrections depending on based on the magnitude of certain inputs and their temporal relation, Applicant's attention

Art Unit: 3663

is again directed to sections [0051+] which disclose the combination of radius estimates and correction factors associated with speed and the magnitude of determined radius estimate.

### ***Conclusion***

**4. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3663

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ejp



JACK KEITH  
SUPERVISORY PATENT EXAMINER